DEPARTMENT OF THE AIR FORCE
WASHINGTON

OFFICE OF THE UNDER SECRETARY

May 13, 1965

MEMORANDUM FOR DIRECTOR, CENTRAL INTELLIGENCE AGENCY
DEPUTY SECRETARY OF DEFENSE

On 8 May, after nine successful days on orbit and one successful recovery, the second bucket of CORONA Mission J-1019 failed to reenter the atmosphere following initiation of the recovery cycle. Instead, the bucket went into a new elongated orbit. A brief summary of our assessment of the failure, and of actions taken, follows.

The most probable cause of failure to recover is that the vehicle had executed a second and additive pitch maneuver prior to separation of the capsule. Thus, the vehicle was then pointing down and forward so that the retro-rocket added net energy to the capsule rather than subtracting it. This placed the capsule in a new orbit with a perigee of 80 nm, apogee of 620 nm, and a period of 98 minutes (as compared to 100 nm, 260 nm, and 91 minutes at the time recovery was attempted

The second pitch maneuver probably was caused by a redundant (back-up) pitch command on the H-Timer tape. Normally, this command does not take effect when the first pitch command is properly executed; analysis now shows, however, that there is a subtle failure mode in which an auxiliary circuit can direct a second maneuver prior to capsule separation.

We estimate the capsule will remain in the new orbit for 40-60 days. SPADATS now reports four objects in this orbit. Since the normal sequence of events took place after retro-rocket fire, it is most likely that these objects are the heat shield, capsule, thrust cone, and parachute cover. A special watch has been established with SPADATS for the reporting of the predicted impact points.

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Since the heat shield appears to have separated from the capsule, it seems unlikely that any of the exposed film will survive reentry into the atmosphere. Nevertheless, film is an excellent ablative material itself and the possibility does exist for survival of some inner portion. We therefore will follow orbit decay and reentry quite closely.

A simple and complete fix will be incorporated in all subsequent CORONA vehicles to preclude any possibility of recurrence.

Brockway McMillan
Director
National Reconnaissance Office